

REMARKS

The Examiner objects to claims 1, 36, 37, and 60 under 35 USC 103(a) as unpatentable over Hold *et al.* taken together with Hillman *et al.* The Examiner points out that Hold *et al.* teach many process variables including shot volume and that they disclose several subsystems including a velocity range monitor, a melt temperature control and a shot volume control for monitoring and adjusting those process variables.

The Examiner also points out that, even if Hold *et al.* fail to disclose the adjustment of the particular variable controlled according to the present invention (i.e. injection velocity), they do disclose the adjustment of a “velocity range monitor”, and that even if Hold *et al.* and Hillman *et al.* fail to disclose the adjustment of such variables in a “setting-up” process, their continual adjustment of set points amounts to “setting up” the injection molding machine.

The Examiner's position is therefore based on the disclosure in the prior art of a large number of process variables, on the disclosure of the adjustment of some variables (said to imply generally the adjustment of such variables), and on the holding as essentially equivalent continual adjustment during operation with setting up before operation.

So broad and indiscriminate a disclosure, however, makes it impossible for the person of ordinary skill to ascertain the particular and advantageous combination of specific variables—and their manner of their adjustment—taught by the present applicant. None of the passages cited by the Examiner (or any other portions of the cited documents) in any way teach or suggest the applicant's approach, and there is no direction in either cited document that might induce the reader to embark on any sequence of steps that might lead to the present invention.

The present applicant has found that through a particular choice of variables and a particular sequence of adjustment of those variables in response to a selected pair of particular defects (*viz.* flashing and short shots), an effective method is provided for optimally setting-up an injection molding machine *prior* to the manufacture of injection molded parts. Hold *et al.* and Hillman *et al.* merely refer to the constellation of process variables and defects that arise when considering injection molding, but entirely fail to point the reader to

the simplified and effective approach of the current invention. Before the present invention was made, there was no reason to suppose—based on the cited documents or otherwise—that one might identify an optimal set-up merely by monitoring flashing and short shots and adjusting only injection velocity and injection stroke. It was not known (and there is no suggestion of this in the cited art) that optimizing injection velocity could increase the effectiveness of injection stroke, as these two variables are by no means obviously related. The inventor discovered that there is a narrow processing window in which to optimally tie together the processing capability of the machine with the constraints imposed by a particular mold on the set-up of the machine if correct filling is to be achieved.

The invention constitutes a procedure that exploits the inventor's discovery in order to provide a simplified (and hence readily automated) method for setting-up an injection molding machine. The method is clearly neither ascertainable nor apparent from the cited combination of prior art, despite its being simple and automatable.

In order to clarify the present invention, however, claim 1 has been amended to include preliminary steps (1) to (4), the particular combination of which is neither taught nor suggested by Hold or Hillman. These steps are supported by the description; specifically, step (1) is supported by page 22 lines 20 to 22, step (2) by page 23 line 1, step (3) by page 23 line 9, and step (4) by page 22 lines 1, 2, 13 and 14.

The iterative adjustment that lies at the heart of the invention becomes steps (5) and (6), which now include the step of “manufacturing a part” (previously in step (1)) in order to clarify this iterative aspect. The word “defects” has been replaced by “flashing and short shots”, as these are—advantageously—the only defects that need be considered according to this method. This amendment is supported by the description at page 22 lines 10 and 11.

Furthermore, claim 1 has also been amended, in line with the Examiner's suggestion, to clarify that step (6) is employed after step (5) *when* (previously “if”) step (5) is found to have substantially no effect or substantially no further effect, *and* (previously “or”) step (5) is employed after step (6) *when* (previously “if”) step (6) is found to have substantially no effect or substantially no further effect. This amendment clarifies that steps (5) and (6) are each

employed a plurality of times; indeed, "whereby steps (5) and (6) are each employed a plurality of times" has been appended to claim 1. This emphasizes the systematic and selective nature of the setting-up technique of the present method, as distinct from the continual adjustment of indiscriminate set points *during* operation according to the cited art.

Claims 33 to 35 and 57 have been amended to be consistent with amended claim 1.

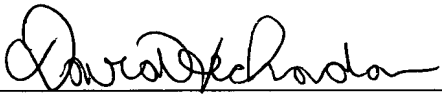
For the reasons presented above, all claims are believed to be in condition for allowance. A Notice of Allowance is therefore respectfully requested.

Should the Examiner feel that a telephone conference would advance prosecution of the present application, he is invited to call the undersigned attorney at the number listed below.

Respectfully submitted,

BUCHANAN INGERSOLL PC

Date: November 30, 2005

By: 
David R. Heckadon
Registration No. 50,184

P.O. Box 1404
Alexandria, Virginia 22313-1404
(650) 622-2300